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FAST NEAREST NEIGHBOR SEARCH WITH KEYWORDS USING ANDROID

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ABSTRACT

There are many modern applications that used to find out objects satisfying both spatial predicate and a predicate on their associated texts. In this paper, for finding nearest hotel a simple solution is introduced which based on IR2 (Information Retrieval R-Tree) tree. IR2 tree includes few deficiencies that affect its efficiency. To increase the efficiency a new method called spatial inverted index is introduced 'SI Index' extends the standard inverted index to address multidimensional information. This new SI index method comes with algorithms which will answer nearest neighbor queries with keywords in real time.

Keywords: Information Retrieval Tree, Keyword Search, Spatial Inverted Index.

Introduction

An increasing number of applications require an efficient execution of nearest neighbor (NN) queries constrained by the properties of the spatial objects. Due to the popularity of keyword search, particularly on the Internet, many of these applications allow the users to provide keywords that the spatial objects should contain description of spatial keyword query. A spatial database manages multidimensional objects (such as points, rectangles, etc.) and provides fast access to those objects based on different selection criteria. The importance of spatial databases is, the real entities are represented in a geometric manner. For example, locations of restaurants, hotels, so on are represented as points in a map, while larger areas such as parks, lakes and landscapes as a combination of rectangles. Queries focus on objects' geometric properties only, such as whether a point is in a rectangle or how close two points are from each other. Some modern applications that call for the ability to select objects based on both of their geometric coordinates and their associated texts.

For example if user wants nearest hotel then he can find it with its famous dish. Means if user wants "Paneer" only then he can enter Paneer as keyword then it will return nearest hotels which has Paneer menu. Currently the best solution to such queries is based on the IR2-tree, which is used in this paper. This algorithm is very efficient to search location with given keywords. Also there is a method called spatial inverted index that is used with multidimensional data and that comes with nearest neighbor search with given keywords.

Existing System:

In the previous system, real nearest neighbor lies quite far away from the query point, while all the closer neighbors are missing at least one of the query keywords. As its fail to find the nearer location of restaurant having with all the keywords or menus available in restaurant. Existing system mainly focus on finding the nearest top neighbor where each node have to match whole query keyword.

Spatial queries with keywords have not been extensively explored. In the past years, the community has sparked enthusiasm in studying keyword search in relational databases. It is until recently that attention was diverted to multidimensional data. Existing works mainly focus on finding top-k Nearest Neighbors, where each node has to match the whole querying keywords .It does not consider the density of data objects in the spatial space. Also these methods are low efficient for incremental query.

Disadvantages of the Existing System:

- Fail to provide real time answers on difficult inputs.
- The real nearest Neighbors lies quite far away from the query point, while all the closer neighbours are missing at least one of the query keywords.

Proposed System:

To overcome the drawbacks of previous applications, we proposed an application for android users. In our system we are mainly dealing with searching and nearer location issues and database manage multidimensional objects which resulted in failure of previous systems. To deal with spatial index as searching the entered keyword and from that find the nearest location having that keyword available and showing the location of restaurant having menus available in map. So easier to find the location of nearer restaurant in map having the available keyword. A spatial database manages dimensional objects (such as points, rectangles, etc.) and provides quick access to those objects.

Advantages of the Proposed System:

- Improves the search experience of the data search service.
- Distance browsing is easy with IR-trees.
- It is straight forward to extend our compression scheme to any dimensional space.

Mathematical Model:

Let W be a set such that

W = {S, E, I,O, F, DD, NDD, Success, Failure}

Where,
S=initial state where user register, login

E =end state where user get the expected result

I= input of the system.

O=output of the system.

F= set of functions

DD- deterministic data it helps identifying the load store functions or assignment functions.

NDD- Non deterministic data of the system S to be solved.
Success-Desired outcome generated.

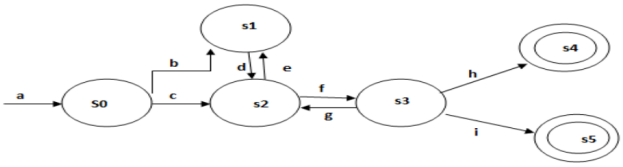

Fig: State Diagram

States: S0, S1, S2, S3, S4, S5

S0: Initial State (User Logged in)

S1: Registration

S2: Login

S3: Search Techniques

S4: Final State (Search Result Displayed)

S5: Final State (Nearest Query/Result shown)

Modules:

1. Registration: In this module a User have to register first, and then only he/she has to access the data base.

2. Login: In this module, any of the above mentioned users have to login, they should login by giving their email id and password.

3. Hotel Registration: In this module Admin registers the hotel along with its famous dish. Also he measures the distance of the corresponding hotel from the corresponding source place by using spatial distance of Google map

4. Search Techniques : Here we are using two techniques for searching the document

I. Restaurant Search: It means that the user can give the key in which dish that the restaurant is famous for .This results in the list of menu items displayed.

II. Key Search: It means that the user can have the list of restaurants which are located very near. List came from the database.

5. Map view : The User can see the view of their locality by Google Map(such as map view, satellite view)

Design Model:

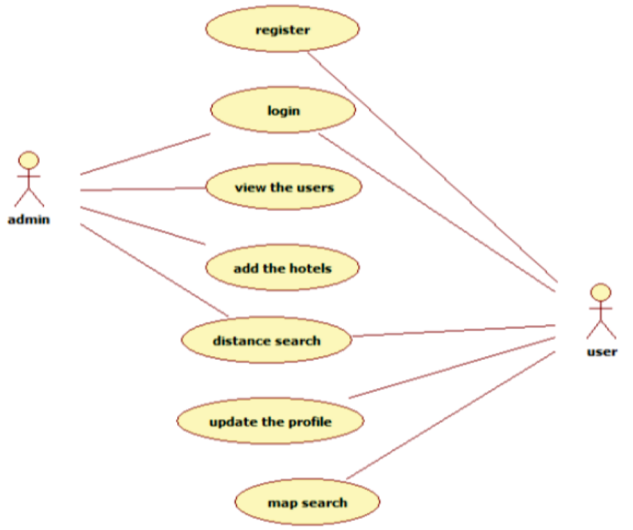

Fig. USE CASE Diagram with Relationship

Goal and Objective:
In this Paper we will develop new concept as per existing project. In that we will provide extra facilities like as hotel, PG, lodge restaurants. For example when we will search information about any one facility in that will show the full information about the searched thing.

When people search the hotel information in that it will show the hotel name, location, distance from your location to hotel, road line, hotel facilities also showing like as menu, rate as per hotel menu, available item food as per cultural.

Expected Outcome:
In this system, when user enters the keyword to search in specific category, than it will show the nearest locations on map related to entered keywords.

Future Scope:
In future, we can use this system in different search engine application which will help the user to find the nearest object in faster way by searching keyword. It can useful in location based apps which will help to find the nearest route for source to destination. Also it provides the quick response for the keyword which will describes the input keyword related details.

Conclusions:
Our Paper is extremely effective for searching nearest restaurant from user location with expected menus. It does this by IR2 tree algorithm- Compression, Merging and Distance Browsing, and GPS System. In this we can add features like after selecting Hotel it will display menu card of that Hotel Implement this application for mobile user.

We have many applications that can be used as search engine which is able to efficiently support novel forms of spatial queries that are integrated with keyword search. In this paper we have developed an access method called the Spatial Inverted Index (SI Index). This method is very effective to perform keyword augmented nearest neighbor search in real time.

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